



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,027	03/17/2004	Yukio Shoji	040122	3468
23850 7590 12/16/2009 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005				
EXAMINER				
DRODGE, JOSEPH W				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
12/16/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/802,027

**Applicant(s)**

SHOJI ET AL.

**Examiner**

Joseph W. Drodge

**Art Unit**

1797

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11, 13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action, amendments and clarifications to the rejections made in this Final office action are in bold-face and are underlined:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,3-6, 8, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Strano et al patent 6,013,178. For claims 1 and 8, the reference discloses a filter comprising inflow chamber 44/16, outflow chamber 56/64, filter elements 26 of cylindrical or frustoconical form having inner and outer curved surfaces (column 2, lines 50-52) so as to occupy an annular space defining a hollow portion, the inflow chamber having a tapering guide structure defining first chamber 54 that guides flow from inlet 44 to the inner surfaces of filters 26 and comprising baffle 50 and plate or flange 46 and inner surface of depending top end plate 24 extending from bottom of end plate 32 to top of end plate 18 arranged such that substantially all fluid flows first axially and then radially towards the filter element, for claim 1, the flow being sprouted from the bottom portion of the inflow chamber in a rising flow. The curvature of portion 24/18 of the guide structure of inflow chamber blocks further upward flow of fluid and forcibly is directing it radially outward to the cylindrically curved inner surface of the filter The flow path is narrowing, has a streamlined shape, extends substantially the entire length of the inflow chamber (figure 4) and forcibly guides per claims 3-6 (see figure 4). See bottom inlet 44 for claim 4.

For new claim 13, the upper portion of surface 24/18 tapers outwardly towards the inner surface of the filter, as does the transition from bottom 32 of guide structure to side surface 24.  
For new claim 14, see narrowing flow path guide 62/57 downstream from the structure and also the filter.

Claims 1-3,5,6, 8,13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamrath patent 1,922,688. For claims 1 and 8, the reference discloses a filter comprising inflow chamber 39, outflow chamber 27/40, filter element 34/35/36 of cylindrical or frustoconical form having inner and outer curved surfaces so as to occupy an annular space defining a hollow portion, the inflow chamber having a guide structure 24/25/28/27, that extends substantially the entire length of the filter structure arranged such that substantially all fluid flows first axially and then radially towards the filter element (figures 1 and 5). The flange or end cap/end plate at the upper end of the filter (element 32/65/90/91/104/105 also defines the top of the inflow chamber guide structure and in combination with other components blocks further upward flow of feed fluid and forces the fluid radially outwardly towards the cylindrically curved, inner surface of filter 27/32 along the entire length of inner surface of filter 27/32.

For new claim 13, the portion of the inflow chamber with guide structure is tapered by means of partially being defined by the inner surface of the filter. For new claim 14, also see narrowing, downstream guide path 27.

For claim 1, the flow is sprouted from the bottom portion of the inflow chamber in a rising flow. The flow path is narrowing, has a streamlined shape and forcibly guides per claims 3,5 and 6 (figures 1 and 5). See upper inlet 38 for claim 2.

Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Campo patent 3,675,776. Campo discloses inflow chamber 22/A, outflow chamber 24/B, filter element 28 comprising a plurality of integral, immediately adjacent layers 60 and 61 that each comprise target trapping/adsorbing elements that act as fall-off preventing elements that are of dis-similar materials and hence are necessarily and inherently of different pore or mesh sizes (see column 3, lines 35-60). Claim 10 does not specify the particular orientation of the target trapping and falling-off element layers. Filter element layers may of material as diverse as plastic, activated carbon/charcoal and zeolite (column 3, lines 34-58). **Campo at column 5, lines 10-15 teaches to filter "many diverse fluids" with respective particular contaminants, thus tailored to have properties such as pore size tailored to particular target material, that necessarily has a target size. Target pore or mesh sizes and other filtering properties are necessarily encompassed in the Campo disclosure "specific filtering materials may be inserted having material specifically suited for the removal of particular impurities" at column 5, lines 10-15.**

The claims do not specify what the direction of flow is through the filter. Outer-most element 61 may constitute a fall-off preventing element for inner-most filter element layer 60, element 61 being on the inner side surface of the surrounding annular inflow path that directs fluid upwardly. When flow is for instance, from an annular inflow chamber A through lower portion of "fall-off preventing element" 61 through lower portion of target trapping element" 60, to lower portion of inner chamber 29, then this would dictate that the fall-off preventing element receives fluid first. Although, fluid flow of a given flow volume continues then through upper portion of inner chamber 29 then outwardly through upper portion of target trapping element 60 and then upper portion of fall-off preventing element 61; all of the fluid flow of a given flow volume is solely first received by element 60 and then element 61 in that order.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamrath patent 1,922,688 in view of Kamrath patent 2,171,752. Claim 4 differs from '688 in requiring also a lower inlet who discloses the filter being an air filter for internal combustion engines. Kamrath '752 teaches a filter of similar structure and purpose having top inlet, flow diverting guide and also lower inlets 24 (column 2, lines 34-50). It would have been also obvious to one of ordinary skill in the filtration arts to have equipped '688 with such lower inlets, so as to separate out any air that is entrained with the initial downward flow of particles and liquid, as well as to wash out residual particles with swirling return currents of liquid.

Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamrath patent 1,922,688 in view of Rabbitt patent 2,655,894. These claims differ from '688 in requiring a differential pressure sensor. Rabbitt and Kamrath commonly are directed towards cylindrical air filters used in internal combustion engines, whereas Rabbitt teaches to equip the filter with a differential pressure sensor and indicator (column 2, lines 27-55). It would have been also obvious to one of ordinary skill in the filtration arts to have equipped '688 with such

Art Unit: 1797

sensor/indicator in order to alert an operator of the need to replace or clean the filter when clogged.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campo patent 3,675,776 in view of Kuh et al patent 4,681,677. Claim 11 also differs in requiring a differential pressure sensor to detect pressure differences between inflow chamber and outflow chamber. However, Kuh teaches a differential pressure sensor, whose details are discussed at (Abstract, column 3, lines 55-64). It would have been obvious to the ordinarily skilled artisan in the filtration arts, to have incorporated a differential pressure sensor of Budzich into the Stutzman oil filtering device, to ensure timely changing of the filter element or filter element cleaning when it has become clogged and no longer provides adequate flow or filtration capacity.



Applicant's arguments filed on 9/28/2009 have been fully considered but they are not persuasive.

It is argued that the flow guide structures (5) of Strano et al and (18) of Kamrath et al do not extend the entire length of the corresponding filter structures. However, such guide structure of Strano comprises the entire inflow chamber 54 of Strano and various elements including surface 24, defining such inflow chamber, as apparent from figure 4 which extend the length of the filter elements. Similarly, guide elements including 25 and 27 of Kamrath extend from bottom to top of the filter element(s).

Appellant now contends that there is no structure in Strano or Kamrath, that extends the entire length of the inflow chamber to be forcibly directed radially inwardly toward inner surface of filter. For Strano, the flange or end cap/end plate at the upper end of the filter (element 32/65/90/91/104/105 also defines the top of the inflow chamber guide structure (that extends the entire length of the filter inner surface) and in combination with other components blocks further upward flow of feed fluid and forces the fluid radially outwardly towards the cylindrically curved, inner surface of filter 27/32 along the entire length of inner surface of filter 27/32. The upper end cap or plate or flange of inflow support and guide structure of Kamrath, although having effecting a radial orientation only at the top of the guide structure defining inflow chamber, similarly effects a radially inward flow of fluid along the entire length of curved inner surface of cylindrical filter element. The claims do not require a particular radial orientation of guide structure, in itself, that extends the entire length of the filter.

It is argued, for claim 10, that flow in Campo near the filter elements flows in two different directions through the two layers of the filter elements, thus there can be no arrangement of filter elements in regard to mesh size, target size and flow direction; claim language now requiring that the fluid flow is so as to solely be first received by one element followed by the other element. The fact that a given flow volume later flows through upper portions of the filter elements in reverse order does not negate the 'solely first received' criteria. Instant claim 10 is not presently reciting that the entirety of the 'fall-off preventing element' be arranged to solely receive the fluid before it flows through entirety of 'the fall-off preventing element'.

It is argued that Campo does not teach specific mesh sizes relative to a “target size” of a target foreign matter. However, it is submitted that target pore or mesh sizes and other filtering properties are necessarily encompassed in the Campo disclosure “specific filtering materials may be inserted having material specifically suited for the removal of particular impurities” at column 5, lines 10-15.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1797

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at his direct government telephone number of 571-272-1140. The examiner can normally be reached on Monday-Friday from approximately 8:30 AM to 12:30 PM and 2:00 PM to 6:00 PM.

Additionally, the examiner's supervisor, Duane Smith, of Technology Center Unit 1797, can be reached at 571-272-1166.

The formal facsimile phone number, for official, formal communications, for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

December 10, 2009

/Joseph W. Drodge/

Primary Examiner, Art Unit 1797